

IN THE CLAIMS:

Please cancel claims 1-4 and 6-11 without prejudice or disclaimer of their subject matter and substitute the following new claims 12-21.

sub 12
--12. A wrapping apparatus for winding a wrapping film about an article to be wrapped, said wrapping apparatus including a film dispenser arranged to revolve along a circular track at a substantially constant velocity about the article to be wrapped, said film dispenser comprising:

a frame;

supporting elements adapted to support a film roll on said frame, said film roll being freely rotatable;

C
a film pre-stretcher comprising a first pre-stretching roller freely rotatably mounted on said frame to receive film from said film roll and a second pre-stretching roller freely rotatably mounted on said frame and disposed in a position parallel to and at a distance from said first pre-stretching roller, said first and second pre-stretching rollers being coupled together to have different circumferential velocities such that a portion of said film located between said first and second pre-stretching rollers is pre-stretched;

a freely rotatable pendulum roller and a spring, said pendulum roller being disposed after said second pre-stretching roller in a direction of film movement to receive said pre-stretched film from said second pre-stretching roller, and said pendulum roller being spring-loaded by said spring acting against a drawing direction of said film; and

a deflecting roller freely rotatably mounted on said frame in a position parallel to said first and second pre-stretching rollers and said pendulum roller, said film coming from said pendulum roller and passing over said deflecting roller to the article being wrapped;

wherein said pendulum roller and said spring are adapted so that a bend is formed between said pendulum roller and said second pre-stretching roller, said deflecting roller acting as a film supply to contain a varying amount of film, depending on a prevailing draw of said film, to maintain a substantially constant drawing velocity and tension of said film from said second pre-stretching roller regardless of variations in said draw and velocity of said film in relation to said film dispenser, said variations in said draw and velocity of said film being caused by a shape of the article being wrapped; and

wherein said spring pendulum roller, said second pre-stretching roller and said deflecting roller are arranged to maintain a substantially constant film tension regardless of a position of said pendulum roller.

13. The apparatus as defined in claim 12, wherein said pendulum roller comprises:

a diverter disposed parallel to said first and second pre-stretching rollers and said deflecting roller, said film passing over said diverter;

a pair of pendulum arms respectively connected to each end of said diverter, said pair of pendulum arms being arranged transversely to a longitudinal direction of said diverter;

a turn arbor coupled to said pair of pendulum arms and pivoted on said frame, and a lever coupled to said turn arbor and having a fastener to fasten said spring thereto.

14. The apparatus as defined in claim 12, said apparatus further comprising limit stoppers to limit a deflection angle of said pendulum roller to a pre-determined magnitude.

15. The apparatus as defined in claim 14, wherein said limit stoppers comprise a first limit stopper, to determine a first extreme position of said pendulum roller, in which said film supply formed by it contains a maximum amount of film, and a second limit stopper, to determine a second extreme position of said pendulum roller, in which said film supply formed by it contains a minimum amount of film.

16. The apparatus as defined in claim 13, wherein a maximum deflection angle of said pendulum arms between their extreme positions is 60° ; and wherein, upon a distance between a swing axis of said pendulum roller and a center axis of said deflecting roller being equal to x ;

a distance between a center axis of said second pre-stretching roller and a center axis of said diverter of said pendulum roller is equal to $3.04x$;

a distance between said center axis of said diverter of said pendulum roller and a swing axis of said pendulum roller is equal to $1.31x$;

a distance between said center axis of said diverter and said center axis of said second pre-stretching roller is equal to $1.73x$; and

a distance between said swing axis of said pendulum roller and said center axis of said second pre-stretching roller is equal to $2.62x$.

17. The apparatus as defined in claim 16, wherein said distance x between said swing axis of said pendulum roller and said center axis of said diverter is equal to 105.4 mm.

18. The apparatus as defined in claim 13, wherein said spring comprises a helical spring having one end connected to said lever and having a second end connected to said frame.

19. The apparatus as defined in claim 12, wherein said first pre-stretching roller, said pendulum roller and said deflecting roller are arranged to contact a first side of said film while said second pre-stretching roller is arranged to contact a second side of said film.

20. The apparatus as defined in claim 12, further comprising a gear transmission coupled between said first and second pre-stretching rollers, said gear transmission having a first gear coupled to said first pre-stretching roller and a second gear coupled to said second pre-stretching roller.

21. The apparatus as defined in claim 20, wherein a transmission ratio of said gear transmission is on the order of 90%.--